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SEMI-ANNUAL.

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ORNITHOLOGISTS' * AND * OOLOGISTS'

SEMI-ANNUAL.

VOL. I. JANUARY, 1889. NO. I.

Instructions for Collecting and Preserving Birds and Eggs.

BY PROF. J. A. SINGLEY, GIDDINGS, TEXAS.

PART FIRST.

BRIEF INSTRUCTIONS FOR COLLECTING AND PRESERVING BIRDS' EGGS.

As many of the eggs sent me are poorly prepared and as this magazine may fall into the hands of some who are commencing a collection, I will give a few brief instructions as to the right way of preparing specimens. An experience of ten years (seven of them as a professional collector) will, I think, convince my readers that I am qualified to give instructions.

A few remarks as to the tools required, which can be bought from any dealer in Naturalists' supplies. Drills are the first requisite, and several sizes will be needed, from 2-32 of an inch for all fresh eggs, up to 1-4 inch for eggs in which incubation is advanced. Larger drills can be had; but who wants an egg with a half-inch hole in it? There are two kinds of drills, the so-called "fine-cut" drill, made to sell, and a toothed or burr drill, made for work. I have all the different makes and sizes of drills; but use altogether the 2-32, 4-32, 6-32 and 8-32 sizes of toothed drills. They last a long time; do not crack the egg and work fast.

Next after drills, the most necessary thing is a blow-pipe; different styles and sizes of these are also to be had, from the fine nickel ones with attachment to the common brass ones, straight or curved. Any

of these will do, provided you do not insert the point of the pipe into the hole in the egg. The curved blow pipe is the most convenient. Glass ones are not to be thought of, from their liability to break. I have used a curved brass blow-pipe, six inches in length, for several years and it is still as good as new. The original cost, was, I think, 20 cts. and I've prepared about 1500 eggs with it. Other articles that are needed are an embryo hook and a small pair of scissors. With such an outfit, anyone can prepare eggs (the tools necessary for preserving birds will be given further on.)

Various ways are recommended for draining or drying the eggs after blowing, such as laying them, hole downward, on a bed of sand, cotton batting, blotting paper, etc. I'll tell you of the "dryer" that I use and how to make it. Take a piece of card-board of suitable size,(mine is 12-18 inches) draw lines across, lengthwise, 1-2 an inch apart: now draw another set of lines, the same distance apart and at right angles to the first lines. Where the lines intersect punch holes with a .32 calibre wad-cutter. Mount this perforated card-board on a wooden frame, stretching it tight,(a few strips of wood nailed to the frame under the card-board will keep it from sagging) tack sides to the frame, projecting about two inches above the card-board bottom, all round, and you have what appears to be a shallow box with a perforated bottom. The eggs are placed in this form, hole downward; and as the hole in the egg is thus placed in the hole that has been punched in the card-board, a free circulation of air is insured, all around and in the egg, drying it in the shortest time; and there will be no cotton, sand or anything else, sticking around the edges of the hole.

Having indicated the tools necessary, a few hints about the field-work part of collecting comes next; and here I wish to warn the young collector against being of a too greedy disposition and "bagging" everything he finds. Of many species he will find hundreds of eggs,(that is in a region where bird-life is plenty) and in cases of this kind he can take for his own collection as many eggs as desirable to show the variations, and a few for exchange. He can always have his choice here and take only fresh eggs, letting the others alone. I condemn the practice of taking only half the eggs in a nest and leaving the rest. Nine times out of ten the bird will desert the nest. Better take all out of one nest and pass the next one. The bird that has been despoiled of its eggs will go elsewhere and build again.

Identification and authentication are the cardinal requisites in collecting. A bird or a shell bears its own label; but the science of Oology has not advanced to that stage where a species can be determined from the egg alone. Never take an egg until you are sure what species it belongs to. An unidentified egg is worse than worthless: it is of no use to the owner, and it is that much bird-life needlessly destroyed. If you find a nest and don't know the bird, secure it, either by snaring or shooting and make a skin of it. Place the same number on the eggs and bird and they can then be identified at any time. Directions for making bird-skins will be given further on.

Supposing the collector starting out for a day's collecting: he will need a box filled with cotton, (a cigar box is excellent) a note-book and pencil (climbers such as are used by "telegraph men" also come in handy.)

If the collector takes to heart what I wrote above, he will carefully identify each set of eggs. Suppose the first set he takes is a set of four eggs of the Red-headed Woodpecker; the bird seen; nest 20 feet up in an elm tree. If he knows the bird's number, he would write in his note-book the following short particulars: 1—375—4—20 ft. —elm, and he would mark each egg of the set No. 1. The small end of the egg is preferably the place for these first numbers. The tenth set, he finds, is a set of three eggs of the Yellow-billed Cuckoo. The nest, eight feet up in a wild plum tree. Here his entries would read: 10—387—3—8 feet—wild plum. Each of the three eggs should be marked No. 10. By this method, the first number always representing the number of eggs in the set, mistakes are almost impossible. If he saw the bird he should write "seen" after the last item. If the bird was caught or shot, he can mention it instead of "seen." The last two items explain themselves, and all these items except the first, must enter into the data of the set. It is not necessary to give materials of nest, except in the case of rare species. I follow the above method of authenticating to save time; but the collector who has plenty of that commodity to spare, can of course write out full particulars of each set in the field. Never trust to memory in these matters; have it in black and white.

The collector, having returned home and being ready to prepare his eggs, let him take them out of his box where he has placed them well wrapped in cotton, as taken, and unwrapping them, place each set by itself on the "dryer" described elsewhere (he will now begin

to appreciate that useful article) now getting his tools, not forgetting a glass of water to use in rinsing the eggs, he is ready to go to work.

The points of the drills, as bought, are always dull, and it is recommended to start the hole in the egg with a pin or needle. These useful articles are small, likely to get lost while working with, and make one more article to look after. You can dispense with them by carefully filing the point of your drillto a needle-like point. Select the least showy part of the egg, and holding it (the egg) in your left hand(the right if you are left-handed) put the point of the drill against the "least showy part," and twirl it (the drill) between the thumb and forefinger. Don't bear on the drill, as if you were drilling in iron, if you do you'll have a hole clear through both sides of the egg, something you don't want. The hole, being drilled until the largest circumference of the burr passes inside of the egg, don't try to pull it out, as a broken egg will be the result if you do. There is an internal pellicle lining the egg; if this is not cut out where the hole is drilled, it will interfere with blowing the egg. By bringing the burr of the drill up against this pellicle, as if you were going to remove it from the egg, and giving it the same twirling motion that you did when drilling, the pellicle will be cut all around the edges of the hole and the drill will come out. Now take your blow-pipe, and putting the point of it close to the hole, blow gently and the contents will come out. When incubation is more or less advanced, a larger hole must be drilled and the embryo removed with the hook and scissors, a tedious operation and not always successful, even with the greatest of care. Better let incubated eggs remain in the nest. A liitle experience will teach you how to differentiate fresh eggs from those that are too far advanced to save.

Never put the point of the blow-pipe inside of the egg, as a bursted egg will be the result, especially so, if your lungs are well developed. Having emptied the egg of its contents, the next step is to take a mouthful of water and inject it through the blow-pipe into the egg, rinsing it thoroughly. Large eggs should be filled half full of water and well shaken. Eggs treated in this manner are perfectly clean inside and offer no inducements to insects to harbor within, a thing they will surely do in eggs prepared in a slovenly manner. Having blown all the water out of the egg, take a soft cloth and wipe it dry, removing any foreign matter that may be adhering to it, taking care, however, not to rub off the number you put on it when collect-

ed and also notice that you do not rub off any of the markings on it. On some eggs the pigment is only loosely applied on the outside. Now place the egg hole downward, directly over one of the holes on your dryer and it will drain and dry in a few hours. Continue in the above way until you clean all your eggs, keeping each set to itself and adding another memorandum in your note-book opposite each set, as to the state of incubation of that set. When the eggs are dry fill out a data for each set. These particulars are taken from your note-book. Suppose he (the collector) takes the first set, that of the Red-headed Woodpecker. He will fill out a blank as follows:

No. 375. Name, Red-headed Woodpecker.
Collector, John Smith.
Locality, Boston, Mass.
Date, June 3d, 1887.
Set mark, 1-4.
Number of eggs in set, 4. Identity, bird seen.
Nest, excavated in an elm tree, 20 feet up; eggs laid on chips at bottom of cavity.

The collector will of course substitute his own name, locality and date for those given above, and if this should prove to be the second, third or fourth set of that species taken during the season, he would mark the set as 2-4, 3-4, 4-4 and so on.

He will mark every egg of that set 375 1-4, using a soft pencil, making legible figures, not too large, and putting them close to the hole in the egg. Never deface an egg by writing the date on it; the above is all that is admissible on a first-class specimen, and accompanied by the data is all that is necessary. If the collector reserves only one egg of the above set, sending out the others to correspondents in exchange, every egg sent out should be accompanied by a data, a copy of the original one made out for the set.

A few words now about forming a collection. Are you collecting hap-hazard, anything and everything, just so you can say that you have more eggs than the "other fellows?" If you do collect in this way, I'd advise you to quit at once. Do you collect, getting only the prettiest eggs, and having them under glass to look at? The Bower Birds of Australia build bowers and ornament them with pearly shells, bright colored feathers and other decorative material, and no doubt derives as much benefit from its collection as the collector who wants only the "prettiest" eggs. If you collect, however, to learn some-

thing from your collection, to make comparisons between the eggs of different species, to note the variations in eggs of the same species, to study the birds themselves in field, forest and closet; then I say, go ahead, collect in sets and in series of sets, always have your material for study well authenticated and your collection will always possess a scientific value as well as a pecuniary one, and you cannot be classed with the collectors who have been rather inelegantly termed "egg-hogs."

A few words about exchanging and I will close this article. Always use tin or wooden boxes in which to ship eggs. Cigar boxes need a cleat nailed inside on the ends to keep the lid from being broken in. Large boxes will also need a partition put in to strengthen the box and obviate packing too many eggs together. Roll each egg seperately in cotton and pack them so they will not shake about in the box, but not tight enough to crush them when the lid is put down. Don't put data or other writing in the box if it is to go by mail, and don't nail the lid down, simply tie it with a string. Use some current price-list as a basis of exchange, and send the data to your correspondent in your letter of advice. Don't wrap thread or tissue paper around eggs after you have wrapped them in cotton. Your correspondent will want to swear if you do, at least the writer hereof has been strongly tempted to do so, when unwinding yards of thread from the eggs, or undoing nicely done up packages, perhaps an invoice of an hundred eggs or more, and each one wrapped and tied like a package of dry goods or groceries. This practice of doing up eggs begets profanity and broken eggs.

PART SECOND.

BRIEF INSTRUCTIONS FOR COLLECTING AND PRESERVING BIRDS.

The tools necessary to put up a bird skin are neither numerous nor costly. A scalpel, scissors, two or three sizes of tweezers and a fish-hook with the barb broken off will suffice for all ordinary work—remember that it's not the tools but the one handling them that does the work. Cotton to fill out the skins with, corn meal or plaster to keep the feathers from being soiled, and arsenic to preserve the skins are essentials. Having the tools and supplies, the next thing necessary is the bird, and the collector will have to rely upon his gun to secure that. Ninety per ct. of the birds taken in routine collecting can be killed with dust-shot—larger shot generally mutilates a bird and it will make a sorry specimen. Experience will prove a better teacher than any written instructions and I will not attempt to give any, except to say that small birds can always be approached closely and it is not necessary to load heavily—"puff" loads, I call them, will do. My ordinary collecting load fills a 16 bore cartridge only about one-fourth full. A 16 bore gun is the right size for collecting. With cartridges properly loaded, such a gun will bring down anything from an eagle to a hummer.

Having shot your bird, the first thing necessary is to stop up the mouth with a fluff of cotton; sometimes it is necessary to plug the nostrils and vent with the same material. This will prevent any blood or the juices of the body from soiling the feathers. A "gob" of blood can generally be removed with the knife-blade—a little experience will teach you the best way. Some collectors plug up the shot-holes, but I simply part the feathers and lay a fluff of cotton directly on the wound. This will absorb any blood that escapes. If the eyeball is broken, letting out the contents, stick the knife-blade into the eye, take the tweezers and by catching hold of the cut edge of the eyeball; the entire eye can be torn from the socket, being careful not to allow any of the glairy fluid to get on the feathers. Dry out the socket with cotton, and insert a pellet of it to absorb any of the juices that may remain. If the nostrils are too small to plug up, a small roll of cotton laid across them and the ends tightly tucked into the mouth will prevent damage. Never try to wipe off blood from feathers—you can't do it and will only make matters worse. Having stopped

all "leaks," make a paper cone or cylinder and drop your bird into it head-first, adjusting the wings and any unruly feathers. Make the cone or cylinder of such a size that the bird will fit closely, and have it of such a length that the end, or ends, can be pinched together, being careful not to bend or ruffle the tail feathers, and your bird will come out of its envelope nice and smooth even after a day's jaunt. A game-bag will do to carry the birds in, putting the heavier birds at the bottom and arranging all of them nicely in the bag.

Labelling is next in order, and is the most important part of the whole proceeding. Locality, date and sex are indispensable. The check-list number of the bird can be added, though not necessary. The collector's number is a requisite, as this refers to his register of specimens, giving full particulars of capture, etc. Length of bird and extent of wing find a place on the label, as also the scientific name of the bird—common name can also be given. Name of collector and contents of stomach are added by some collectors. By using abbreviations, all this can be put on the two sides of a medium sized label. Sex is denoted by the sign of Mars for male and Venus for female. L., length, Ex., extent, etc., etc. Labels with strings attached can be bought of any stationer.

We will now proceed to skin our bird. The first thing to be done is to take a measurement of the length, which is the distance between the tip of the bill and end of the longest tail feather. Lay the bird on its back on the table, the tip of the bill flush with a pencil mark. Take hold of the bill with the fingers or tweezers and with the disengaged hand take hold of both legs and pull, using force enough to get the curve out of the neck, (don't pull too hard) keep the bill flush with the pencil mark on the table, and mark where the end of the tail points. Measure this with a rule for the "length," giving dimensions in inches and hundredths of an inch. Distance between the tips of the outspread wings: place the bird on its back, head towards you, take hold of each wing at the bend and using moderate force stretch them to their full extent. Measure the distance between tips, and enter on your label as "extent." These two measurements can be taken only from the bird in the flesh. Length of wing, bill, feet, etc., etc., can be taken at any time from the dried specimen. Now make a paper cylinder the exact girth of your bird, securing it with a pin, this makes a good drying form. Lay the bird on its back (head to the left) and taking the scalpel (a sharp pocket-knife

will answer) part the feathers along the middle line of the abdomen from the vent to the lower end of the breast-bone. A bare space will be seen and here the incision is to be made, cutting only through the skin, from the end of the breast-bone down to and into the vent. This latter makes a sort of button-hole termination to the cut, and it is not apt to be torn in manipulation. Now with the blade of your knife carefully separate the skin from the flesh along the line of the cut. Take hold of the cut skin with the fingers or tweezers and keep working carefully, lifting the skin from the flesh (no force or cutting is required) until you meet with an obstacle—this is the thigh. Lay down your knife and taking hold of the leg, push it up inside the skin, (easily done) and with the scissors sever bone and muscle at the knee joint. Skin down the leg which will come out of the skin, like a finger out of a glove, to the heel joint. Scrape all the flesh off the bone and draw the leg-bone into its sheath and leave it. Repeat the operation on the other side, and remember that all this time the feathers along the edges of the cut have an unhappy tendency to get into the opening you've made. This can be prevented by putting a little cotton between the raised skin and body of the bird, and all the time you are working keep the flesh covered with the meal or plaster—this absorbs the juices and keeps the feathers from getting soiled. Having skinned both legs and worked the skin loose down to the tail, the next step is seperating this from the body. All the tail feathers are inserted into what is popularly known as the "pope's nose." Set the bird upright on its breast on the table press the tail backwards, take the scissors and snipping away at the junction of the "pope's nose" and body until you sever the tail-stump from the body. Great care is required here, for if you through carelessness cut the skin, the cut will wander around and the first thing you know you have a tail-less bird skin. After the tail is severed from the body, use the back of your scalpel and separate the skin carefully from the rump (the adhesion between the skin and body is stronger here than at any other point.)

If you will now take your fishhook, attach a string to it, stick the hook into a firm part of the rump and hang the bird up where it will swing freely about the heighth of your breast, you will have both hands free to work with. Having hung your bird, work the skin away from the body, using the back of the scalpel blade or your finger nails for the purpose. NEVER pull a skin, as it will either tear or stretch so badly that all the after manipulations will fail to make a good speci-

men of it. Work down until you are stopped by the wings; and reccollect that as you work, the skin is being turned inside out. When the wings are reached, you must sever them close to the body(inside the skin of course)just as you did the leg. Seize the wing-stump with the fingers and work the skin down as you did on the body until you come to the secondaries. These feathers are grown to the arm-bone (ulna) and require loosening from the bone. They can be stripped down by using the thumb-nail, taking care to work the skin loose all round to prevent tearing. Having skinned to the bend of the wing, the "ulna" is stripped of all flesh and allowed to remain, all the other bones with muscles being removed. Do not skin beyond bend of the wing. If the "ulna" or leg bone has been broken by a shot, a piece of sharpened wire can be made to take their place—the wing requires this bone to hold it in position. Having skinned the wings, leaving them turned inside out, skin down towards the head, which is the easiest part of the job.

You now meet with the head and it will take patient work to skin over this. Always remember to push and not pull the skin, and presently you'll be rewarded by seeing the skin slip over the head to where it is pinned to the head by the ears. With the small tweezers detach the membrane that lines the ear opening. Do this for both ears. You have now come to the eyes. Work very carefully here. Cut the eye membranes from the bone, and inserting the point of the scalpel lift the eye from its socket entire. It's hard to give instructions how to do this and it must be learned by actual work. Take care not to open the eye-ball or lacerate the eye-lids. During all this time the skin must be supported in your left hand, (left-handed people will work the contrary way)and must not be allowed to hang as this would unduly stretch the neck and give you trouble. You will now separate the body from the skin, and to do this, cut down the base of the skull with the scalpel, severing completely body and neck from it. Scoop out the brain through the opening in base of skull and your skin is ready for poisoning.

If you have no drawer in your table to hold the arsenic, a large shallow cigar box or any other box of suitable size will answer. With a spoon or spatula apply the arsenic to every part of the skin, (inside) putting plenty in the brain cavity, eye-sockets, mouth and on the tail stump. Shake off all the surplus into the box, the moisture of the skin causing sufficient to adhere. Roll up two small

pellets of cotton and fill the eye-sockets. You are now ready to turn the skin, and if you will remember how it was everted you will have no trouble in getting the head back. It requires a little dexterity to do this at first, but it doesn't take long to learn. Having turned the skin, pull the wings out and lay the skin on its back. Make a roll of cotton slightly smaller than the neck, put one end of this in the tweezers and work it gently up the neck until the empty brain box is reached. With the fingers of one hand hold the cotton in place, (the end in the brain cavity) and remove the tweezer and the neck is stuffed. Cross the wing-bones on the back, (some recommend tying them together) and make an artificial body of cotton, taking the natural body for a model, and work it carefully into the skin, keeping the end of the roll of cotton that you put in the neck in your left hand. When the body is in position, you can shorten the neck of the skin by pulling on the roll of cotton; or if you wish to lengthen the neck, a slight pull on the head will do it. Having the neck the proper length, tuck the cotton along the artificial body and bring the edges of the skin together. Arrange the eyelids and any feathers that may be awry, set the wings in position and slip the skin into the paper cylinder that you made before commencing the skinning. Having made your skin and written the label, the determination of sex comes next. Lay the bird on its side, (belly towards you) cut with the scissors from rump to the ribs, pushing the intestines aside and you will see the small of the back. Capping the kidneys you will see the testis, (if a male) "a pair of ellipsoidal bodies" generally of a dull whitish tint; if a female, the ovary, a white granular mass occupies the same position. Mark the sex on your label, cross the legs of the skin and loop the label on where they cross, and lay the skin away to dry.

The above instructions apply to nearly all birds; some Woodpeckers and Ducks cannot be skinned the usual way, the head being too large to pass through the neck skin. In such cases skin to the base of the skull, cut off the head inside the skin and turn the skin back to its natural position. Part the feathers in a straight line down the back of the skull and make an incision long enough to allow the head to pass through. After skinning, the head is put back and the cut sewed up, taking fine stitches—it's a tedious operation.

If blood or any other substance has dried on the feathers they can be washed out. Do this immediately after skinning and before filling out with cotton. Take a sponge and with luke-warm water wash out

the stains. Put on plenty of plaster or meal to absorb the moisture, pressing it down and scraping off with the scalpel. As it gets dryer, raise the feathers, sprinkling on the absorbent. and blowing on them gently to dry thoroughly. Dried blood can often be removed by scraping with the thumb-nail, holding a finger opposite the thumb for resistance. A bird will remove blood with its bill.

A few words of caution are necessary. Recollect that arsenic is a DEADLY POISON and exercise the utmost care, for the sake of others as well as yourself. Do not bulge out the eyes of your specimen. Make it look as natural as possible. Cotton is a springy substance and if you put in too much, it will give your bird skin a dropsical appearance.

In forming a collection, the amateur should be satisfied with a pair, male and female, of each species; but where the plumage varies greatly with the seasons he may have specimens enough to show the variations. The professional Ornithologist needs large series of each species; but such is not the case with the amateur. Thoroughly work up the birds of your locality before doing much exchanging. You will be much surprised to see what a large number of species you can gather in a district, easily collected over on foot. After you've learned to make a skin do not prostitute your knowledge to the making of "millinery skins." That is a depth to which the true collector or Taxidermist never falls. If you cannot determine your specimens send them to the "Smithsonian," or to the New York Central Park Museum. I believe the Ornithologists in those institutions will always help a beginner out. These instructions conform to my ornithological *Alma Mater*, Dr. Coues' excellent "Field Ornithology." Where I depart from his instructions the method I've given suits me better than his. We're not all of a mind. Should the collector desire to mount his specimens he must get some good work on Taxidermy. This will give full instructions.

Trusting I've made things so plain that "he who runs may read," I am,

Ornithologically and Oologically yours,

J. A. SINGLEY.

THE AMERICAN OYSTERCATCHER.

Hæmatopus palliatus.

BY W. W. WORTHINGTON.

Well do I remember the first specimen of this wary bird I ever relieved of his skin. I was hunting along the South Carolina coast, and by carefully sculling my little skiff I was able to approach near enough to risk a long shot. At the report of my gun he tried to rise, but a chance shot had tipped one wing and his only chance of escape was by running.

AMERICAN OYSTERCATCHER.

Quickly grounding my skiff, I jumped out and started in hot pursuit; but I was encumbered with my heavy boots, and how he could run! He made directly for a small creek and reached the water about six feet ahead. In I plunged and was just about to grasp him, when he dove and I only captured him by plunging my arm in nearly to the shoulder; but I had him safely in my grasp at last, and as I squeezed the life out of him I admired his black head, neck, tail and wing tips, brown back, white rump and under parts and bright red bill, (which is a veritable oyster knife) and also his sharp yellow eye.

These birds are found throughout the year along the South Alantic coast and are very shy and difficult to obtain. They nest on the outer beaches, simply scratching a hollow in the sand in which the eggs are deposited—in Georgia about the middle of April. Further north they are laid a little later. Maynard, in "Birds of Eastern N. A." says: "they lay about June 6th," which is no further from the truth than many other statements in the same volume.

Of two sets handled by myself the past week, the first, taken April 19th, was about one-fourth incubated. The other set, taken the 20th, had two of the three eggs picked. The eggs have a pale drab ground, with dark brown spots, some obscured by the ground color. Average size, 2.25x1.50.

NESTING OF THE COOPER'S HAWK.

BY W. L. MARIS.

After a long and tedious search for eggs in one of our largest Chester County woods, and almost despairing of finding anything worth while to carry home, I was suddenly startled by a loud, hoarse cry coming from above the tree-tops. A glance in the direction of the sound at once revealed to me its author, a female Cooper's Hawk (*Accipiter Cooperi*) swiftly circling around.

The uneasiness of the bird, and its cries, which soon attracted its mate, of course had some meaning to an Oologist, and a few minutes search in the direction from which came the sudden sounds, soon showed me a nest in a tall, slender tree. Without any parleying with the birds, which continued circling around, as to my right to so intrude upon their home, I immediately began the ascent. Soon, at the height of about thirty-five feet, I stood upon the first branch below the nest and looked down upon my first set of five eggs, of this, our most common "Chicken Hawk." Nothing handsome, to be sure, being simply a pale bluish-white, with one spotted a little at the larger end; but doubly prized, since they added another to the list of species whose eggs I have myself collected.

As I examined the nest and wrapped the eggs in cotton, preparatory to descending, the birds, which had up to that time watched me very closely, were now nowhere to be seen and did not appear again until I had left the immediate vicinity. The nest was somewhat bulky, seemingly a last years Crow's, with a few additions. It was placed in the forks of four branches, and composed of twigs and hay, and lined with several rough pieces of bark.

The statement made by Langille, that this bird builds "always very high," was not sustained in the present case, as the nest was not above thirty-five feet from the ground. The eggs, which lie before me, measure respectively 1.86x1.61; 1.88x1.56; 1.89x1.50; 1.88x1.54; 1.81x1.56 inches.

MY SET OF HALIÆETUS LEUCOCEPHALUS.

BY LE GRAND THEODORE MEYER.

While comfortably seated in my home-like boarding place, with a good cheery coal fire, reading a southern paper, my eye chanced to light upon the following item:

BALD EAGLE.

"For a number of years, a pair of Bald Eagles have nested within five miles of this city, near a negro settlement."

Being somewhat of a traveler, my mind was instantly made up; for I had long wanted to pass the winter in the south; and in looking over my fair collection of eggs, there always seemed to be an indescribable longing when I thought of how a set of Bald Eagle's eggs would improve it, and how a rival collector asserted his claim to a set of two, obtained at a momentary risk of his life.

To go to Southern Georgia was my sudden resolve; so accordingly, I packed my valise, including a set of overalls (necessary Oological instruments) and a .38 calibre magazine rifle, going more for sport than collecting.

A ride of three days brought me, figuratively speaking, from winter to summer, for although they call it winter here, it little resembles ours, being more like a balmy spring instead.

Arriving at the little town of Hillsborough, I "put up" at their apology of a hotel, and commenced to ascertain the whereabouts of the noted tree. The people were just over their Christmas jubilee or festival, and were about to commence the country routine work.

I "tipped" my purse liberally to a number, but was unable to gain the desired information. The amazing lack of Ornithological love among the "masses" is certainly deplorable. I remember a Natural history dealer who was worried to death by inquiries about a window he had fixed with mammals and birds; the principal one being, "where did them Ostrich eggs come from?" They being eggs of the Com. Guillemot.

Resorting to my last means, I called upon the corpulent editor of the "Advertiser" in his sacred sanctum. He had been so informed by a "cracker" farmer, who had been so told by one of his servants. The place had been nick-named "Negrotown," so to this place I turned my wandering feet. After trudging about five miles, I enquired at a low log hut, whether they knew of the nest. The versatile proprietor, an Ethiopian as black as a coal heaver, replied: "Sutinly suh, sutinly. Hit's a fac'! De nest am 'bout a ha'f-mile from hyah. If you wish, we kin ride ober an' see it."

We mounted a pair of razor-backed mules and went on our way through the stunted and straggling undergrowth. "Yes! dey hab done used the same nest foh neah as I kin rekkerlect; foh, lemme see, about twelve, fohteen years.

Upon approaching the tree, (an aged sycamore) we found the upper part, where the nest was located, to be dead, probably to better enable the parent to view the surrounding territory. Many ignorant persons suppose the birds kill the tree; so I addressed this query to my guide: "How is it that the trees are always dead?"

"Oh! de bird always kills de tree" (I suppose he noticed an incredulous look); "hit's a fac', foh I hab seed foah trees an' they were all dead."

It was plain to be seen that the nest was genuine; so I secured board at my guide's mansion (?) and determined to await proceedings. With naturalistic delight, day after day, I would sit hidden and watch the Eagles (the King of birds and our national emblem) sail gracefully for over fifteen minutes without flapping their wings.

Meanwhile, the nest, which was about the size of a bushel basket, rapidly grew by additions, until in outline it far surpassed the original size. For two days I did not see either of them, except the male fishing at a neighboring lake, a mile away. Rising earlier than common one morning, I saw the two magnificent birds eating their breakfast of fish, which was presumably brought by the male.

The female crouched in the nest and away flew the male to his lonely perch. "Well, old lady, I suppose you are about to lay your treasures; so I'll not be selfish, but wait and let you keep them a week, thereby I'll be more likely to get a full set. 'I'll not kill the goose to get the golden egg.'"

Meanwhile some startling revelations were taking place. One evening, while eating my supper, and the hostess would tempt the

fleeting appetite of the daintiest epicure with her biscuit, honey, milk, ham and eggs, Pompey said: "Mistah Myahs, 'pears like de people tink dat you am gwine to take our Eagle's nest, and dey want me to tell youh dat dey will tah and fedder youh if youh do. Foh it would bring on a plague on us if hit was destroyed."

I was thunderstruck; but I might have suspected it among such a superstitious, ignorant people. However, I managed to stammer out, "Oh! you are mistaken, Uncle Pompey, for I am just sketching the nest." This appeared to satisfy them; but how to get the nest was the next perplexing question.

Two days before the week ended, I shot the male while he was perched on a tree, watching an Osprey fishing. To prepare the skin was the work of an hour, and rolling it up carefully, I concealed it on my person, thereby running the gauntlet and succeeding in getting it safely locked in my satchel.

The only way I could conjure up to get the eggs was by a night attack; so leaving my window up on retiring, I laid down to rest until I was sure Pompey and Dinah were asleep. I had not long to wait, for about ten o'clock sounds came issuing from their chamber which would remind the unitiated of the starting of some heavy freight-train. Carefully and noislessly taking my climbers, a bag which I had lined with cotton for the eggs, and my rifle, I started for the tree.

The night was as dark as one would wish for; but in my stay I had become so familiar with the surroundings that I easily found the nest. Putting the rifle against a tree, the bag in my pocket, and the climbers on, I commenced the ascent. The tree would have proved by day almost inaccessible to the daring collector; but the thought of the valuable treasure beyond and its benefit to science nerved me to the deed.

Nearly exhausted, I finally reached the first limbs, where I recruited my weakened strength. Upon again starting upwards, I heard the female leave the nest with a "swish." With agonizing suspense I listened, thinking that perhaps on her hasty exit she would push out the eggs, owing to the shallowness of the nest; but nothing dropped. At last I came in reach of the nest; clutched and felt one, two—"Great Scott!"—three warm eggs. Was a collector ever so blest? I am sure if it was not for the slenderness of my perch, seventy-five feet from *terra firma*, and fearing of the consequences arising from awakening the natives, I should have fairly howled with delight.

Putting the eggs in the bag, I lowered it by a string to the ground. Once in my descent I slipped but saved myself by catching on a limb, and without further accident reached the ground. The eggs were pale white in color, measuring 3x2.52;3.02x2.51 and 3.05x2.54. Date, Feb. 19, '81. Next day I bid my colored friends a tearful (?) farewell and was soon home again after having a delightful recreation of four weeks. [B. S. O.]

THE CARDINAL GROSBEAK.

Cardinalis virginianus.

BY PROF. J. A. SINGLEY, GIDDINGS, TEXAS.

This is our most common species, resident, and found everywhere, even in the scattered clumps of timber on the prairies. It prefers the bottoms however, and 75 per cent. of the individuals will be found there. During the winter it is reinforced by the migrants from further north and the bottoms are fairly alive with the Cardinals. It cannot be called a noisy bird only in the breeding season, when its musical whistle is heard from every clump of shrubbery. The adult male is a rich red color on the back; wings and tail slightly mixed with grayish —a black mask entirely surrounding the bill. Length, 8.00-9.00 in.; extent, 11.00-12.00 inches. The female is of an ashy-brown color, paler and yellowish below; the crest reddish and bill red same as that of the male. Average size, a little less than the male. Specimens taken here are not strictly typical, as they merge into the sub-species *Cardinalis virginianus igneus* of the Mexican border. There is less variation in the nests of this bird than of any other species with which I am acquainted, and the greatest variation in the eggs.

Nesting usually commences early in April, sometimes in the latter part of March, and continues until August; two if not three broods being reared. The nest is always started with twigs or brambles, then a few pliant weed stems and strips of grape-vine bark are added; on this a number of dead leaves, and finally finished and lined with fine grass. It is placed anywhere from a bush a foot high up to twenty feet in a tree (seldom up to that height.)

The eggs number three or four, seldom two, and vary in number in

different seasons, as at times it is difficult to find a full set of three eggs; at others three eggs is the rule and four the exception. The eggs are white, sometimes thickly marked with brown; in others the markings are of a lavender tint; again eggs are found where the brown or lavender markings almost conceal the ground color, and others where the markings are few, of a reddish-brown color, resembling some eggs of the Meadow Lark. Again some eggs are of a greenish tint, the markings of a slate color and the egg bearing a close resemblance to that of the Nighthawk. It is impossible to describe all the variations. Some of the eggs cannot be differentiated from those of the Texan Cardinal. Average, 1.05x.79 inches.

AMONG THE RAPTORES.

BY DR. W. S. STRODE, BERNADOTTE, ILL.

On the afternoon of March 22nd, 1887, I had a collecting experience, the pleasure of which will not soon fade from my memory. Having a professional call to make to see a family residing three miles west of the village of Bernadotte, I thought it a good time while in this section of the country, to take a look for the eggs of the Raptores, there being here a large tract of woodland, jutting out into the surrounding prairies, that had escaped the woodman's axe.

Strapping on my climbers, and putting a ball of stout string in my pocket, I mounted my horse and started, making my visit. I then turned my attention to looking for nests.

Away across the fields to the south of the highway, a quarter of a mile, in an eighty-acre tract of timber, I could see in the top of a tree, a large, bulky nest of some kind. Leveling a good opera-glass at the structure, it became very plain to me as the nest of a Hawk, and I even fancied I could see the head and tail of the bird above the edge of the nest.

Going through a gate into the field that intervened, I rapidly rode to within a short distance of the tree in which the nest was situated. Tying my horse to a fence, I went over, and throwing a club into the tree, the Hawk left the nest; but kept sailing around in near proximity to it. The bird, I soon discovered, was not a Red-tail, our most

common nester, but a species that I was not sure of, from the imperfect sight which I was able to obtain, as it circled around at a considerable height.

Ascending the tree to the nest, I found that it contained three eggs, of a greenish-white color, with a few indistinct brown markings. The nest was quite a bulky affair, composed of sticks and large weed-stalks. One dead elm stick I noticed as being over four feet in length and an inch in diameter at its thickest part. The lining was of grape-vine bark and oak leaves.

Both birds now appeared upon the scene, alighting near by on another tree. I drew out my glass and took a close look at them, and soon recognized them by the wide transverse band across neck and breast (ashy-brown in one and light rufous in the other,) as being a pair of the handsome Swainson's Buzzard (*Buteo Swainsoni*) and I felt correspondingly elated over the possession of the three eggs, which I put into a yarn mitten and attaching the ball of string to it, lowered with great care to the ground, which in a very few minutes I also reached.

I now started in to look this piece of woods over carefully for further finds, and had not gone over two hundred yards before in a nest about forty feet up in an elm, I saw the ear tufts of a Great Horned Owl, followed soon by the big yellow eyes and head, staring down at me as if enquiring what business had I intruding there.

At the first click of the climbers against the tree, the bird left the nest and flew to a distant part of the woods; but returned with her mate as I neared the nest, and they gave me a fine serenading with their hoo! hoo! hoos! with many grotesque bowings and swayings of their bodies from side to side.

I found two snow-white eggs in the nest, rather below the average size of eggs of the *Bubo V.* I lowered them as before and soon followed them to the ground. The Owls again flying to a distant part of the timber as soon as I left the nest and commenced to descend.

I found nothing further of interest in these woods, so returned to my horse and to the highway. Carefully secreting my eggs, I now rode two miles further to another large body of timber, and at once set about searching for nests. Soon finding one in the top of a large black-oak; but no Hawk being present I did not climb it, as it is my rule never to climb to a nest unless I know it to be occupied.

Going a few hundred yards further, I discovered another nest in a

large white-oak, and I could plainly see that it was occupied. Shying a club up into the tree, a Red-tail left the nest. Quickly making the ascent, I found the nest occupied by three very handsomely marked eggs of this species. The nest apparently being an old one repaired, and lined with bits of moss and grape vine bark. These eggs presented a very different appearance from those that I had diagnosed as Swainson's.

I might add that the nest occupied by the *Bubos* was, in my judgment, an old Crow's nest. I found no other nests of particular interest in these woods at this time; but subsequently found another nest of the Red-tail from which I obtained two eggs.

I found many Crows' nests in different stages of completion; but not caring much for their eggs, I did not wish to spend time climbing to them, except in one instance, when my attention was attracted by the peculiar material in one nest, which presented much the appearance of a large ball of tow. Prompted by curiosity, I went up to it and found it constructed almost entirely of the fibres of the Indian hemp, which grew profusely near by at the edge of the prairie, The nest contained four fresh eggs which I took.

I now started to return home, having eggs enough to fill both mittens. I found that I had been absent from town two and one-half hours; distance traveled not less than eight miles; one professional visit made; four trees climbed; sets secured, Swainson's 1-3; Red-tail, 1-3; Great Horned Owl, 1-2, and American Crow, 1-4. How is that for rapid collecting? [B. S. O.]

A PECULIAR NESTING SITE.

While digging a gas-well in this city, the workmen broke some part of the machinery and had to quit work for a few days. During that time, a pair of Bluebirds built a nest and laid two eggs in the sand pump. After the nest was removed and work commenced again, the birds remained on the derrick for nearly two days.

JAS. S. ZOLLER, Greensburg, Ind.

[B. S. O.]

THE CHIMNEY SWIFT.

Chætura Pelasgica.

BY H. W. DAVIS, NORTH GRANVILLE, N. Y.

This dusky little summer visitor does not receive half the attention and appreciation that it justly deserves.

Who, on a summer's afternoon, has not sat and watched it in its irregular and rapid flight as it flitted hither and thither? Now circling about some old chimney, and for a moment hovering over its top as though about to descend, and just as you look for it to vanish into the darkness of the brick walls, like a fickle creature, off it will dart, uttering its sharp, twittering cry as though defying you, and chuckling to itself over your disappointment; then back again it will come, only to go through the same evolutions, and again disappoint you, if you are watching to see it make the descent.

CHIMNEY SWIFT.

Its rapidly moving wings and long sweeping symmetrical curves, as it sails about, can but commend it to your admiration.

This little bird, peculiar to America, is found throughout the United States, west to the eastern slope of the Rocky Mountains. It is 5.25 inches long; wing 5.10; tail 2.15.

In examining it closely, one finds many points that are very interesting. The nostrils have a membrane partially covering them behind, leaving a small tubular opening. The tongue is sharp and divided. The small, slim feet are very muscular and the claws exceedingly sharp. The tail is even and the shafts of the tail feathers are elongated into sharp and very elastic points.

It is of a dark sooty-brown above; somewhat lighter on the rump. The feathers on the throat are a beautiful greenish-white. A light colored line extends from the bill over the eyes. The small, glistening, black eyes are surrounded by a bare, black skin, which (on close inspection) gives to the head a rather grotesque appearance.

The Chimney Swift appears in this section, from the Tropical re-

gion, about the latter part of April. It builds its nest in chimneys and appears to prefer the old-fashioned square chimney; ones that are not in use. It rarely builds in chimneys that are in use if others can be found, which would leave us to infer that it was not particularly partial to smoke. In the unsettled sections of country, it builds in the trunks of hollow trees and in caverns.

The nest is composed of small twigs which it breaks off with its feet and cements together. The nest is stuck firmly to the side of the chimney or hollow tree, with the same glutenous substance that is used in cementing the twigs.

The eggs, usually four in number, are dusky-white and unspotted. Not unfrequently, small or "luck eggs" are found in the nests, which is the case with two sets that I have collected. Two broods are usually reared in a season. It feeds on insects and the larvæ of small beetles, the indigestible portions of the food being disgorged.

THE BLACK AND WHITE WARBLER.

Mniotilta varia.

BY WM. L. KELLS, LISTOWEL, ONT., CANADA.

This species, in some of its food-seeking habits, resembles the Brown Creeper, for which reason it has, until lately, been denominated the Black and White Creeper. It also frequents much the same situations, though it does not penetrate so deep into the forest; but is often, especially in spring-time, observed on the outskirts of the woods and in new fallows, where the other species of Creeper is never heard or seen. Its movements, while in quest of its insect food on the trunks of trees, are generally in a circular manner, and its mode of procedure, rather a series of hops, than creeping jerks. It will also run out along the branches and cling to a limb with its feet, sus-

pended back downward, while searching for the prey that may be concealed in the crevices of the bark. Its food-seeking employment is often varied in the early season by its perching on a small branch and warbling its song in a cheery and pleasing manner. At other times, it will alight upon the ground and feed upon the various species of insects that it finds there, and again it may be seen running along old logs and fallen brushwood, foraging for food, or seeking a nesting place, or material for its nest.

It arrives in this vicinity about the middle of May, and for a time it may be observed pursuing its various avocations, in company with many other small birds, along the fences and the borderings of the woods. As the season advances, it seems to prefer to glean more amongst the higher timber, though it is never very shy, or manifests much alarm at the approach of human kind, and when incubating, the female will remain upon the nest until she may be caught, or almost trodden upon before she flushes. When nesting or incubating, she remains very quiet, so that the nest might be within a few feet, and yet the person not be aware of the bird's existence; but as soon as the young begin to assume their nesting plumage, the old birds soon betray their nesting place by their noisy notes.

The nesting sites of this species are much similar to those of the Slate-colored Junco and Connecticut Warbler, being either in the root of a fallen tree, the side of a small bank, at the root of a bush, or some other partially covered spot, somewhat like that of the Oven-bird. The nest is generally formed of some fine materials, as dry leaves, bits of moss, fibres of bark, fine, dry grass, rootlets and different kinds of hair. The set of eggs numbers four or five; these are of a creamy-white hue, dotted around the larger end with a circle of pale reddish-brown spots. In size they average .63x.53 inches. The bird itself is about five inches in length. The plumage on the upper parts is black and white, in alternate specks. The lower parts are white, the tail is spotted and the wings are barred.

[B. S. O.]

THE CANADA GOOSE.

Branta canadensis.

BY WM. G. SMITH, LOVELAND, COLORADO.

Here, upon the plains of Larimer Co., Colorado, is the winter resort of great numbers of Canada Geese. Small lakes are here very numerous; and as this is a great wheat and corn growing section, which furnishes them with a fine feeding ground, great numbers stay here through the winter.

CANADA GOOSE.

I do not think the Canada Goose breeds anywhere in Colorado; but I have seen many in Wyoming Territory, about 200 miles north of here during the month of June, and have reason to believe that they were breeding there; but had no time to investigate.

They arrive here from the North early in October, and are then very fat and well feathered. The Hutchins' variety generally precedes them by a few days, but *they* do not stay here in any great numbers through the winter, but after lingering a few weeks, pass on to more southern latitudes. On their return journey north, they do not stay here, except to rest for a few hours.

During severe weather, when the thermometer registers in the tens below zero, the Geese will congregate on a large lake near my house and will by constant swimming about, with the assistance of thousands of Mallard Ducks (which also stay with us all winter), keep open several acres of water. At such times either the Geese or the Ducks will always be found at their post, as it is a matter of life or death to them then, the Geese go off to feed at early morning when the Ducks come home, and also in the evening, taking care to get home by dusk, as then the Ducks go out to feed, and don't come back until the peep-o'-day.

In the five years that I have resided here, I have never known them to fail to keep open a large piece of water, which, without their con-

stant attention would soon freeze over, and their only supply cut off, as the rivers as well as lakes are then closed up.

On this lake they are well protected and a shot-gun quarantine is rigidly kept up to keep off hunters; but numbers are killed while passing to and from their feeding ground.

[Mr. Smith writes that he is not familiar with the breeding habits of the Canada Goose and therefore cannot give a description of its nest and eggs. We have tried to get an authentic account of its nesting habits, but have failed to do so, but we will furnish a full account in next issue from a collector who is familiar with its nesting and has collected several sets of its eggs. ED.]

NOTES ON SOME OF THE WINTER BIRDS OF CHESTER COUNTY, PA.

BY W. L. MARIS, WEST CHESTER, PA.

One of the prettiest little birds, which braves the snow and rain of our ever-changing winters is the Chickadee, *Parus atricapillus*. Common as this bird is, yet how glad is the Oologist who has had the fortune to secure a set of its eggs himself, and how many are the weary although pleasant hours I have searched for them.

A few years ago, a row of evergreen trees, in a property adjacent to my home, were constantly occupied by a flock of Chickadees, and one would forget how cold it was, watching them playing with each other what seemed to be merry games. A beautiful set of six eggs of this bird, which I have in my collection average .60x.47 inches.

Among the foremost of our winter birds is the American Crow *Corvus americanus*, and a very noticeable one in our winter landscape. During the present winter, they have been very tame, often venturing within thirty feet of the house.

The Downy Woodpecker, *Dryobates pubescens* commonly called "Sap-sucker," I often see pecking away at an old willow tree out in the yard. He is the dwarf of his family and may be distinguished by his size from all the other Woodpeckers in this locality. He is often disappointed as to his home, for frequently does an impudent House Wren, having watched the process of house making or rather excav-

ating, drive him away and take possession of the place in his own name; and I also was disappointed in a case of this kind. I had for several days been watching the excavation of a nest by a Downy Woodpecker, and had already imagined five or six beautiful white eggs lying snugly packed away in my collection, when one morning on visiting the nest, you may imagine my surprise and vexation at finding a plucky House Wren now occupying the home of my Downy Woodpecker.

The Owl line is represented in winter by the Long-eared Owl, the Great Horned Owl and the Little Screech Owl. Concerning the latter bird, a peculiar instance of its unwillingness to leave a spot which it has chosen for its home, returns to my mind. A pair of these birds have for at least four years had the same nest in the hollow of an old apple tree, and just as regularly as the female would lay a set of eggs, they were always taken by a person in the neighborhood. Does it not seem strange that a bird should continue to lay eggs in the same nest so many years, after having been continually robbed of its eggs? And it certainly must have been the same bird, for surely three or four different pairs would not select the same place in successive years for breeding purposes.

The Slate-colored Junco *Junco hyemalis*, is generally quite abundant during the winter. This little bird is a favorite with everyone, and deservedly so. We all enjoy its pleasant chatter and pleasing ways as it hops about in search of food.

The noisy English Sparrows, of whom we all know a great deal, are always with us. Several pairs annually build about our stable, and I destroy, on an average, seventy-five eggs a year from these nests. If all our Oologists do their part, we can certainly do something to prevent the rapid increase of this little pest.

Hawks are abundant, although perhaps not so much so as before our state legislators passed our famous "bounty law." During the two or three years of its existence, Pennsylvania paid as bounties for the slaughter of Hawks and Owls almost one hundred thousand dollars ($100,000.00), besides suffering untold injury from their destruction.

The White-breasted Nuthatch *Sitta carolinensis*, is another very interesting resident but, as in the case of the Chickadee, its nest is seldom found here. Last year one was discovered, but upon being opened it was found to contain but two eggs. It was in a tree along the border of the woods and was about twenty feet from the ground.

[B. S. O.]

EXTINCTION OF OUR BIRDS.

BY LE GRAND T. MEYER.

Like the once inpenetrable forests which bedecked our prairies, protecting us from the varying temperatures and securing an uniform rainfall; like the once well-stocked lakes and rivers with fish, now comparitively barren; like the once common mammals that swarmed the woods; so, likewise, is the time rapidly approaching when our present common birds will become rare or obsolete.

What is the cause of this extermination, you are ready to ask? Let me enumerate the artificial causes, taken from trustworthy observations and statistics.

First, the "Pot-Hunters." Those human fiends that from day to day tramp the happy feeding grounds of game birds. Let us take some of the common species which were once abundant and are now extinct in many localities, and see if my assertion or logic is defective.

The Pinnated Grouse and Quail (I might mention the Ruffed Grouse if it was not for its wonderful powers of flight), were once one of the most common game birds east of Mississippi River, now nearly extinct among the New England and Middle States. For a market supported by bloated epicures and sensualists, they have done their work thoroughly.

The multitudes of Geese and Ducks have become so reduced that hunting them as a pursuit has become unprofitable.

Where are the myriads of Pigeons, Wilson and Audubon give us such glowing accounts of, less than a century ago? With us even the old settlers remember flocks that would dim the sky for hours in passing; now we see a few straggling pairs paying pilgrimage to their ancestor's haunts.

Second, for Fashion. Those ladies (?) that from their ill-concealed vanity yearly sign the death warrants of millions of birds simply because they possess an attractive plumage. Recently, an item in an exchange read: "Lady Gemini appeared in the reception room with a dress decorated with patches of three thousand Brazilian Hummingbirds!" Not long ago I saw a woman in a cable-car wearing a hat with the heads of, by actual count, twenty-one Quails. Do you think

they were taken from those slaughtered for the market? Impossible.

One human resemblance, living near the sea-coast of South Carolina, supplied, for a New York milliner, three thousand Roseate Terns; so that locality, once resoundant with happy parental cries of this graceful "Sea Swallow," is silent.

Among the lagoons of the Southern States, hunters from day to day kill scores of the Great White Herons, the Spoonbills and the Ibises simply because they possess a few plumes. The loss of these species would be a truly national loss. Verily, they are doomed, from the plebian Sparrow to the graceful Swan.

Third, our Amateur Naturalists. Many of the present embryotic Ornithologists believe that in order to become Audubons or Bairds, they must slaughter indiscriminately every species met, and every nest must be robbed, under the transparent veil of science. A prominent Ornithologist in our state asks, in speaking of shooting Herons for their plumes, whether it makes any real difference whether they are shot in the fall migrations, or in their colonies or heronries with nests of eggs or young. Plainly the difference is too obvious to enumerate.

A true Ornithologist is a bird's best friend; his aim should be to perpetuate every species, destroying their enemies rather than fostering them. The inspection of a collector's cabinet resulted as follows: six hundred insectivorous and graminivorous skins, while only thirty-eight specimens represented the order Raptores. A fair sample of one's work.

Let us all then, during the approaching season, not show too much greediness, and above all do not make marks of every bird found, simply for the sport of killing them.

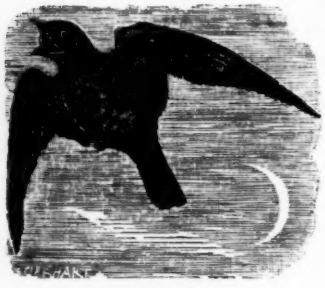
This law alone would save thousands every year.

THE NIGHTHAWK.

Chordeiles virginianus.

BY L. O. PINDAR, HICKMAN, KY., PRES. Y. O. A.

The Nighthawk, almost universally called "Bullbat" and sometimes "Whip-poor-will" and "Goatsucker," is a common migrant here in Kentucky, arriving early in May and September.



NIGHTHAWK.

In the spring migrations, usually three or four are seen some evening about seven o'clock; two or three days later more are seen, and as a rule, it is a week before they become common. Then they commence to leave, getting scarcer every night, till all are gone.

In the fall it is different. They generally arrive in a body, earlier in the day, and they go on through. There is no "stop for refreshments." Only a few laggards are seen for a day or two following, and then all are gone.

One fall, I think it was in 1887, two large flocks, containing together at least three hundred individuals, made their appearance about four o'clock in the afternoon of a rainy, disagreeable day. They kept in a rather compact body, and moved steadily southward, only occasionally would one make a clash to one side and immediately return to the ranks. In half an hour, yes! in twenty minutes, they had passed out of sight. One was seen the next day, flying about in a desultory way; but he too disappeared and no more were seen till the next spring.

People outside of Ornithological circles seem to know nothing of the habits of this bird (we Ornithologists don't know much.) The name "Goatsucker" alludes to a superstition implied in the name. And those who call it "Whip-poor-will" confound it with another bird, of widely different appearance when closely examined. The name "hawk" is a misnomer (I told a boy the "Bullbat" was a Nighthawk, and he wanted to know if it would kill chickens.)

It was probably so named from a certain resemblance in flight to several of our hawks with long and pointed wings. And this reminds me of the fact that I have seen the Nighthawk and the Sparrow Hawk fly for a short distance by flapping the wings alternately. I have never seen this mode of flying practiced by any other bird and have never seen a note of the habit in any of our Ornithological publications.

Dr. Coues aptly describes the bird when he calls it a "winged greyhound." One of the most remarkable habits of this interesting bird is its soaring aloft in the mating season, and dashing to the ground, making at the same time a peculiar, hollow, "booming noise," which can not easily be described.

The manner in which this sound is produced has never been satisfactorily explained. Some think it is produced by the "sudden expansion of the mouth while passing through the air"; others claim just as strongly that it is made by the wings. I have formed no opinion yet, and it is not probable that we shall soon discover the solution of the puzzle. There are good reasons given for accepting either of the above theories.

The Nighthawk builds no nest as a rule. In fact, the few twigs or leaves occasionally found can scarcely be said to constitute a nest. The eggs are generally laid on the bare ground, sometimes on a sandbar, on the surface of a flat rock, or even on the roofs of the houses in a city.

I have heard and read stories of the Nighthawk carrying their eggs, and even young, from one place to another, when their nesting or rather hatching place had been discovered. Other birds, the Woodcock, *Philohela minor* for instance, have the same habit, and it is a well known fact that the Wood or Summer Duck, *Aix sponsa* carry their offspring from the nest, often twenty or thirty feet high, to the water's edge.

The eggs of this bird are two in number, and are among the most variable in color. The ground color varies from creamy-white to a stony-gray tint, and they are spotted, blotched, lined and fretted in every conceivable way with different shades of gray, brown, stone color, slate and lilac; probably no two eggs being exactly the same.

Unlike the Whip-poor-will, the Nighthawk does not prefer thick woods and wet places, choosing rather open, dry sites, with plenty of sunlight, which no doubt helps to hatch the eggs when the parent birds are off the nest.

The Nighthawk is by no means a nocturnal bird, being often seen hours before twilight and sometimes even in the glare of noontide.

It is much persecuted at times by sportsmen, its winding, twisting and rapid flight affording excellent practice in wing-shooting.

Altogether, the Nighthawk is one of the most interesting and remarkable birds we have, and a careful investigation of its habits will amply repay any observer, besides affording him the chance of being able to solve the mystery of the curious notes above mentioned.

THE NASHVILLE WARBLER.

Helminthophila ruficapilla.

BY WM. L. KELLS, LISTOWEL, ONT., CANADA.

The life-history of this bird is yet, to a great extent, wrapped in obscurity. Sometimes it is numerous in the spring migration; again it is comparatively rare. It can only yet be regarded as a migrant in the south and central parts of Ontario, as no certain record has yet been made of its nesting, or making its summer home in this locality; though it is very probable that more of this genus of birds may remain during the summer, and nest in the deep, swampy woods of this Province, than is now generally known.

In my early days, while rambling in the forest, or at work in the woods in the summer time, I have seen nests of little birds, never since discovered by me, and almost every year since I began to form my Oological collection, I have taken one or more nests of Warblers previously unknown to me, and as I occasionally catch glimpses of others in my hunting excursions in the summer season, I am led to believe, that as time progresses and more attention is given to the subject, more nests of these birds will be discovered and described by our rising Ornithologists, and among others that of the Nashville Warbler. This is the more probable in the case of this species, from the fact that its general habitat is in deep, swampy places, where few persons interested in Ornithology care to penetrate, and also from the fact that specimens of this species are occasionally observed on the margins of swampy woods, in the summer season.

It is said that this species nests upon the ground in the moss that grows in damp places, and to form the same with dry leaves, fibres of bark, pine needles, fine, dry grass and hay. The eggs, four or five, are white, speckled with lilac or reddish-brown.

This is one of those wanderers of the Mississippi Valley which appear to enter Ontario from the south-west. It is between four and five inches in length, and on the upper parts the plumage is of an olive-green, brighter on the rump; but ashy on the head. Below it is bright yellow, paler towards the lower parts, with olive shading on the sides. Crown with a chestnut patch, and pale ring round the eyes.

SEA BIRDS AND THEIR EGGS.

BY WALTER RAINE, TORONTO, CANADA.

One of the famous breeding places for Sea Birds in the British Isles is Flamborough Head in Yorkshire; and as many species found there also inhabit the Eastern Coast of North America, perhaps the following notes will be of interest to Ornithologists:

From Flamborough Head to Speeton, a distance of five miles, extend the famous chalk cliffs of Bempton, ranging from three hundred to over five hundred feet in height. It is on these cliffs that thousands of Sea Birds resort annually to lay their eggs and hatch their young.

Presuming that it is about the middle of June, we will take train from the fashionable seaport town of Bridlington, and after a ten mile ride we reach Bempton, that we may see the climbers at work. They are the farmers of the district who go about in gangs of three and four, one to do the climbing and the others to haul him up again. Each gang has its certain range of cliffs to climb, and the owners of the fields that border the cliffs receive a quantity of eggs as payment.

As we approach, we see a group of four men near the cliff top preparing their ropes. First they drive an iron bar into the ground a few feet from the edge of the cliff; to this they fasten the hand rope. With this rope the climber steers himself, signals and holds on to with his hands. He takes hold of this rope and walks to the edge of the cliff, where he drives another iron bar into the ground. This bar has

a pulley attached to the top, and over this pulley a rope runs which is fastened to a pair of strong leather knee breeches. The climber gets into the breeches; fastens them around his waist by means of straps; puts on an old plug hat padded with handkerchiefs to prevent falling stones from hurting his head; slings over his shoulder two bags (one of the bags has a small pocket for the more delicate and rare eggs) and is ready for the descent.

When all is ready the climber proceeds to and over the edge of the cliff, and steadily disappears from view. The climber always faces the cliff whether ascending or descending. The man nearest the pulley has a broad leather belt round his waist, and he lets the rope go once around his body, the men behind lowering away gently. This goes on for a few minutes till a signal from the hand rope denotes that they are to stop lowering, meaning that the climber has got to a ledge which contains eggs.

The ledges vary from four inches to one foot in width. When the climber reaches one of these ledges which contain eggs, he commences filling his bags with eggs.

The birds leave their nests and eggs on the climber's approach, screeching all the time and flying around. The Puffin is the only bird who stays in his hole, and the climber has to seize him and drag him out before he can secure the single egg, and he often gets his finger bitten, for the Puffin has a powerful beak and from this fact it is called Sea Parrot in this district.

The climber has been down over twenty minutes, when he signals to be drawn up and in a few minutes his head appears above the edge of the cliff and he is soon on *terra firma* again. He at once empties his bags, and has secured over fifty eggs, chiefly Razorbills, Guillemots and Puffins. Some of the eggs are very fine specimens and we select a few for which we have to pay from four to six cents each. The better marked eggs are sorted out and the ordinary ones are put in a separate basket and are afterwards sent to Bridlington where they are sold to be eaten. I have found them very good eating.

The climbers now move farther on and having fixed their ropes and bars, another man goes down, causing many Kittiwake Gulls to fly away screaming loudly. He soon reaches their nests, which are made of seaweed, built in a ledge of the cliff, and contain two or three eggs each, which vary considerably. After a while he is drawn up and as his head appears above the edge of the cliff, he calls

out to his companions, "some Falcons' eggs," and carefully unpacking his bags, there in the small pocket, he exposes to our view four splendid eggs of the Peregrine Falcon, which I afterwards purchased.

He describes the nest as resting in a ledge of the cliff, made of sticks and seaweed; lined with grass and sea birds' feathers. The clutch of four eggs were very handsome, of a light pinky brown ground color; mottled and blotched with various shades of dark brown. In the large pocket he has some fine clutches of Kittiwake, Herring and Lesser Black-backed Gulls, with a few Guillemots, Razorbills and Puffins.

Moving on a little farther, the ropes and bars are again fixed and the man who made the first descent again is lowered, and after a short time appears as before with his bag well filled. This time he unpacks his bag it contains eggs of the Cormorant, Guillemot and others as before, and in the small pocket he has eggs of the Jackdaw and Kestril Hawk. The latter makes a nest of sticks and grass on a ledge of the cliff, and lays four or five eggs of light red ground color; mottled and blotched with rich, dark brown.

The Jackdaw makes a similar nest; but its eggs are of a pale bluish-white, well spotted with ashy, light and dark brown. The Raven formerly nested on these cliffs; but is now seldom seen in this locality.

The climbers are still at work, and by lying on our stomachs and carefully crawling to the edge of the cliff, we can see a number of nests of the Kittiwake Gull, built on the ledges below. Most of them contain two eggs; but some have three, whilst one nest contained two young birds, a few days old.

The Guillemots' and Razorbills' eggs are laid on the ledges of bare rock (some of which are only a few inches wide), and it seems a marvel that the eggs are not blown off; but the reason is this, that the eggs are placed with the thick end to the cliff, and instead of rolling off they revolve around, the narrow end of the egg acting as a point.

The largest number of eggs taken in one haul is about one hundred, chiefly Guillemots and Razorbills. There have been a few serious accidents to the climbers during the past few years; two having arms and legs broken, and one has been killed outright.

When the climbers consider they have done a good mornings work, they sort out all the rarest and best eggs, which are sold to collectors

and dealers, and the common varieties of Guillemot and Razorbill are sent away in large quantities, from two to five hundred at a time. These are sold in the fish shops of large towns for eating, and are considered a delicacy.

The species found nesting in this district are the Skout or Common Guillemot, Ringed Guillemot, Razor-bill Auk, Puffin, Cormorant, Kittiwake and Herring Gulls, Peregrine Falcon, Kestril Hawk, Jackdaw and a few smaller species.

The eggs of the Guillemot probably differ more than those of any other species in color. I have one hundred varieties in my collection, all different; some are quite white, while others have a yellowish-buff or green ground; blotched, spotted and streaked with brown and black.

The eggs of the Razorbill also differ very much in size, color and markings, and are easily distinguished from those of the Guillemot. They are smaller in size and are less elongate. The ground color is whitish, tinged with buff, and is never green like those of the Guillemot; but like the eggs of that bird are blotched and spotted with brown and black. The eggs of the Ringed or Bridled Guillemot are like those of the common species.

The Puffin lays its single egg at the far end of a hole, from one to four feet deep. The egg is pure white when first laid; but soon becomes soiled and turns to a yellowish white. Some Puffins' eggs are spotted and freckled with brown and gray, chiefly at the larger end.

The Kittiwake Gull is a beautiful bird and lays from two to three eggs; sometimes four are laid, but very seldom, two being the usual number. Some eggs have a stone-colored ground, others are an olive shade and still others a bluish gray ground. All are well spotted and blotched with ashy-gray, lilac and various shades of brown.

The Common Cormorant makes a nest of large sticks and seaweed, and lays from four to six eggs, covered with a white, chalky incrustation, which on being scraped off with a knife, leaves a shell of a pale bluish-green. The Cormorant is becoming scarce in this district.

The Herring Gull makes a large nest of seaweed and lays two or three large eggs, which vary greatly in coloring, from a warm stone color, through shades of brown, to pale and light olive-green and are spotted with brown, black and gray.

We now think it is time to leave the cliff tops, and packing our

eggs we walk along to Flamborough Head. On our way we startle several Wheatears from rabbit burrows, and find three nests made of feathers and rabbits' fur, built from one to two feet inside the burrow, and containing five or six eggs each, of a pale blue color, like those of the Bluebird. We also startle a Meadow Pipit or Titlark from its nest of four eggs (dusky-brown, freckled with dark brown), built on the ground.

After visiting the Light House at Flamborough Head, and the wonderful caverns, we return home much pleased with our visit to the home of the "Sea Birds."

THE COMMON OR SORA RAIL.

Porzana carolina.

BY C. C. MAXFIELD, WILLARD, N. Y.

This Rail is very little known on account of its skulking habits; it being very difficult to get one to rise from the ground. Another reason, that may be cited, is that they choose as a home and nesting place, a low, swampy swale; which, in nearly all cases, is partially or entirely covered with water, and thick undergrowth is so interlaced as to make it very difficult to move about in search of them.

The bird itself is small: length, about 8 1-8 inches; wing, 4 2-32 inches; tail, about 2 inches; bill, from 1-2 to 2-3 inches and the tarsus slightly over 1 inch. The upper parts are greenish-brown, with numerous black and white streaks and specks; belly, whitish; throat, light slate color; bill, light yellow, and legs and feet light green.

My first specimen was taken very late in the Autumn of 1883, while hunting ducks on Ox Creek, Oswego Co. Owing to the lateness of the season, I was much surprised to take this one; but after securing the specimen, the absence of the left wing fully explained matters. The feathers of the left side lay smoothly, and at a short distance the loss of the wing could not be noticed. About a half-inch of the humerous still remained covered by skin, but no feathers. On dissection, the bone appeared cracked and broken at the end.

Another specimen, and a set of ten eggs were taken on Memorial Day, 1884, in Onondaga Co., in a swale a few rods from the Oswego River, about seven miles from where the first specimen was taken.

A pair of the birds were followed for about two hours, by two companions and myself, in water nearly waist deep. After being thoroughly wet through and very cold, one of the pair was secured—the female. On dissection, a fully matured egg was found in the oviduct.

Later in the day, the set of ten eggs were taken at the edge of the same swale. The nest was built in the top of a bunch of swale-grass, of dead and dry grasses found in and near the swale, and was very shallow; about 5 1-2 inches in diameter, and rather rudely constructed. Incubation of eggs varied much, being from fresh to badly addled.

The five eggs of the set, which I have in my collection, measure respectively: 1.32x.84; 1.26x.90; 1 29x.87; 1.35x.84; 1.38x.90. In color they are a light creamy-brown, dotted by blotches of two shades of darker brown: the lighter shade of the blotches being hardly distinguishable from the ground color.

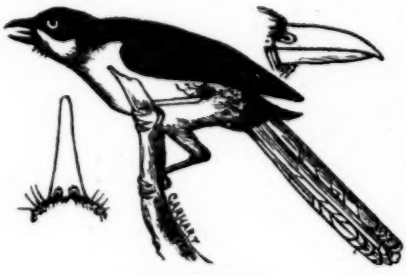
Mr. E. G. Taber, at Meridian, N. Y., reports in the *Ornithologist and Oologist* of Boston, Mass. the taking of a set of seventeen eggs of this species. I have never taken but the one set of ten, mentioned above, but no doubt the set number varies and no positive information can be given.

THE MOCKINGBIRD.

Mimus polyglottos.

BY J. A. SINGLEY, GIDDINGS, TEXAS.

This prince among the feathered songsters is very commonly dressed; upper parts ashy gray; lower parts soiled white. The wings are dark with a large white space on the primaries; length, about 10 inches; extent, about 14 inches. During the winter, the "Mocker" will be found mostly in the bottoms, where they feed on the various berries found there. A few remain in their summer quarters. A red cedar tree in my yard is the bedroom of one jaunty fellow, he roosting with the chickens. The "Mocker" is rather an overbearing kind of a fellow. I have never seen him attack other birds; but he takes especial delight in alighting on a limb where some bird of another species may be resting, and crowding up to it (exactly as a "bully" among the genus "Homo" may often be seen to do) he will make it take to flight, when he follows after, until the other bird leaves in disgust.



MOCKINGBIRD.

During the winter, *Mimus* warbles only his own ditty (not an elaborate performance); but when the breeding season arrives everything is changed. Then he is so full of music that he don't lose a moment. I have whiled away many an hour, watching "my" bird, as I call the one that nests at my door. He will fly on the housetop and deliver a few notes, then to an outbuilding, singing as he flies, then perhaps to the woods, and you hardly miss him until he is back again to the tree where his wife is incubating. Alighting on one of the lower limbs, he rises, half flying, half hopping, until the top of the tree is reached, then flying straight up five or ten feet and fluttering back again. All this time he is singing the notes of every bird he ever heard. Sometimes, to vary his tune, he'll imitate the mewing

of a cat; again he'll set the old hen crazy by imitating the cry of a chick in distress. It is a puzzle to me when he eats, as this is kept up all day. Sometimes he sings until midnight, and occasionally all night long. Like most birds, the female does all the work of nest-building, the male making the noise; but after the family comes he is a model husband, and very little music does he indulge in until the little ones are able to take care of themselves.

The Mockingbird is not very particular as to a nesting site. He is a social fellow and generally builds close to some residence, that is, in the country. The only exception to this rule being the nests found on the prairies. They never build in the woods remote from dwellings, neither do they build close to a deserted dwelling.

The nest is a bulky structure, the ground work being a platform of good sized twigs. On this, the nest proper is built, out of weeds, small twigs and grasses; lined with fine, brown rootlets. The nests are found in almost every position; sometimes in a small bush not more than six or eight inches above the ground; sometimes in trees fifty feet up; then again in brush piles, or on the corners of a rail fence, and I even found a nest in a hollow stub from which I had once taken a set of eggs of the Texan Screech Owl.

The number of eggs in a set is generally four or five. Sets of three and six are also found, but not often. The eggs vary a great deal in size and markings. The typical egg is of a pale greenish-blue, mottled with spots, specks and blotches of yellowish and dark brown, and lilac or purplish shell markings. These markings and spots are often confluent at the larger end, forming a wreath. Some eggs are entirely covered with brown at the larger end, and again others are found where the pale brown is distributed over the whole egg in light and darker shades; entirely concealing the ground color. The handsomest eggs, I find, however, are of a bright greenish-blue, plentifully speckled with chocolate brown and the purplish shell markings. A correspondent to whom I sent a set of eggs of the last variety wrote me: "I did not think that the Mockingbird laid such beautiful eggs." Average size of eggs, .97x.74 inches.

I've given a long account of the "Mocker" for two reasons; *i. e.* because he deserves it, and also for the reason that several articles lately appearing in various magazines are simply caricatures of the bird and its habits, and were probably written by persons who have had little opportunity to study the bird in its uncaged state.

[B. S. O.]

THE BELL'S VIREO.

Vireo bellii.

BY LYNDS JONES, GRINNELL, IOWA.

At Grinnell, Iowa, Bell's Vireo usually arrives during the second week in May. His favorite resort is the underbrush, whence his characteristic song issues from spring to autumn. Any attempt at a description of this song would be futile. It is not rich and flowing like that of the Warbling Vireo, nor short and broken like that of the Red-eye; but is a steady breath with many inflections and accents, and always ends with a flourish and rising inflection, suggesting inquiry.

Often when in close proximity to the nest, though ignorant of its exact position, I have watched the birds as they scolded severely. Then, while the female continued this protest, the male would suddenly cease and take up his song, apparently at a distance, while he sat as if a part of the branch on which he was perched. I very soon learned his trick and watched him as he practiced ventriloquism on me.

Bell's Vireo is a very sociable liitle fellow. He never retires to the secluded woods to build his nest; but chooses some roadside or by-path where he sets up housekeeping. Building usually begins late in May, and the eggs are laid during the first week of June. The nest is lashed to the slender twigs of some tree or bush, preferably the hazel bush here, and is seldom more than five feet from the ground. It is not as neatly woven and compactly built as nests of Red-eye and Yellow-throat, nor is it as artistically finished as theirs; but is usually quite long and made of some grayish or drab colored material externally, quite often stuccoed with cobweb and hickory blossoms. Inside this covering may be found cottony or woolly substances, and lastly a lining of brownish colored bark-fibres and a few horse-hairs.

From what has been said above of the nesting sites, one might infer that the nest is easily found. Experience tells a different story. Small and of modest tint, it is not easily recognized amongst the woody stems and green foliage. I have often searched hours for a single nest and failed to find it.

The eggs, three or four in number, are a delicate white when fresh, spotted and dotted, never blotched, with several shades of brown,

thickest near the large end; but seldom inclined to form a wreath. I have taken sets in which there was one pure white egg. The eggs measure .65x.58 to .70x56.

THE BIRDS OF SOUTHEAST TEXAS.

PAPER No. 1.

BY JAS. H. RACHFORD, BEAUMONT, TEXAS.

Every year hundreds of people go to Florida to collect birds and birds' eggs, while Texas, with its birds, is as yet almost unmolested. Yet a wider and more diversified field nowhere in the United States presents itself to the collector than here in Texas. As yet we know little of the birds in this State. Every year some new bird is found here which is represented in scientific books as being only the inhabitant of Florida or some other particular locality; as for example, the Florida Barred Owl and Florida Crow are said to be strictly local species of Florida, yet they both are abundant, and the most common birds of their kind in South-east Texas. Thinking that perhaps a detailed description of the birds here will be instrumental in causing some one to become interested in the study of our birds, the writer will try to describe some of them, and tell something of their habits, and the times when they may be found among us.

During the months of February and March, thousands of little winged journeymen stop to rest among us, and wait for the bright, sunshiny days of spring to chase away the cold of winter before they venture further north, where they make their summer home. These are known as the American Robin, and can be known as having their upper parts of slate color, with a shade of olive; a black head; eyelids and spot over the eye white; eyes dark brown; bill yellow, often with a dusky tip; the throat streaked with white, and the under parts chestnut. This bird usually goes to the Northern States to nest, building its nest, which is composed largely of mud, upon the horizontal bough of a tree, depositing from four to six eggs; size, about 1.18x.80 inches, of a uniform greenish-blue color.

The next bird, which shall claim our attention, is the Mockingbird,

called by ornithologists, *Mimus polyglottos*, meaning the many-tongued mimic. This bird needs no introduction, and we shall describe it but slightly, and try to bring out some of the points whereby the male or singing bird can be distinguished from the female. The upper parts of the adult male bird are ashy-gray; lower parts soiled white; wings blackish-brown, and the primaries, with the exception of the first, marked with a large white space, restricted on the outer quills usually to half or less of these feathers, but occupying nearly all of the inner quills. The female bird is similar to the male, but the color is less clear and pure; above rather brownish than grayish-ash; below, sometimes quite brownish-white, at least on the breast. In general, the clearer and purer are the color and the more white there is in the tail and wing, the more likely is the bird to be a male and prove a good singer. Usually, the female is smaller than the male. This bird lays a greenish-blue egg, spotted with brown, and builds its nest of twigs anywhere in trees or bushes.

Hopping around amongst the low undergrowth in the darkest portions of our woods, will be seen flitting hither and thither a brown bird about the size of the "Mocker," and one which almost rivals the "Mocker" with his song. This bird is known as the Brown Thrasher, more commonly called Brown Thrush and by some the "French Mockingbird." Its upper parts are uniform rich rust-red, with a bronze tinge; tail same color as back; under parts white, more or less strongly tinged, especially upon the breast and flanks, with tawny or pale cinnamon-brown, and throat immaculate, marked with a necklace of spots. This bird builds in low bushes or clusters of bushes, and builds a bulky nest of twigs, sticks and bits of bark and fibrous roots; lined with horse hair and a few feathers.

Flitting here and there from one tree to another and clinging upon the smallest branches of the trees, will be seen the Black-capped Chickadee, a small bird with the crown of its head, and its chin and throat black, separated by white on side of the head; its upper parts brownish-ash, and under parts more or less pure white or whitish. This little fellow builds its nest in hollow logs. The nest is composed of a soft mass of hair and fur, downy feathers and fine dry grasses.

[The above is the first of a series of some fifteen or twenty papers by Jas. H. Rachford of Beaumont, Texas, which are now being published in two Texas paper, one in Beaumont and the other in Houston. Mr. Rachford has kindly offered us the privilege of republishing

these papers, and they will appear in future issues of the O. & O. SEMI-ANNUAL. The object of these papers is to awaken an interest in Ornithology and Oology in Texas, and as they will contain a list of all the birds which pass through Texas as well as those that remain there, giving a brief description of each, their habits, etc., they will be of considerable interest to our readers, especially those residing in Texas. After the completion of the papers, Mr. Rachford proposes to publish them in pamphlet form. We will furnish our readers with copies as low, if not lower than they can be procured elsewhere. ED.]

BRAINS OF BIRDS.

Mr. Park has kept a complete record of the weight of the brains of the birds mounted by him, and of the principal parts of the brain and the eyes. The following table shows approximately the relative weight of the brains of birds to the entire weight of the birds of the families found in the vicinity of Troy:

NAME OF FAMILY.	WEIGHT OF BRAIN.		WEIGHT OF BIRD.
Grebes,	1	to	230
Gulls,	1	to	155
Terns,	1	to	72
Petrels,	1	to	78
Ducks,	1	to	165
Bitterns and Herons,	1	to	138
Coots,	1	to	167
Phalaropes,	1	to	61
Snipes and Sandpipers,	1	to	75
Plover,	1	to	67
Grouse and Partridges, (including Prairie Hens)	1	to	240
Hawks,	1	to	86
Owls,	1	to	56
Cuckoos,	1	to	59
Kingfishers,	1	to	77
Woodpeckers,	1	to	34
Hummingbirds,	1	to	30

Flycatchers,	1	to	43
Larks,	1	to	43
Jays, (Canada)	1	to	30
Crows,	1	to	63
Blackbirds and Orioles,	1	to	35
Finches and Sparrows,	1	to	29
European Sparrows,	1	to	31
Swallows,	1	to	37
Waxwings,	1	to	39
Shrikes,	1	to	32
Vireos,	1	to	26
Wood Warblers,	1	to	27
Thrashers,	1	to	35
Wrens,	1	to	23
Brown Creepers,	1	to	26
Nuthatches,	1	to	25
Kinglets,	1	to	27
Thrushes,	1	to	39
Domestic Fowls,	1	to	527

BRAINS AND BODIES.

In referring to the figures given in the above table, Mr. Park said: "The flycatchers, hawks and owls have very large eyes, and in some cases one eye weighs as much as the whole brain. Owls are remarkable for having the cerebrum larger in proportion to the whole brain than most other birds, and the flycatcher is noted for having the optic lobes of the brain more largely developed than other species. Ducks and gulls have a medium-sized brain. The grouse and partridge have the smallest brain in proportion of any of the birds in this vicinity. The domestic fowl has an insignificant brain in comparison to the weight of its body, the brain weighing only about one-five-hundredth part of the body, while a sparrow's brain weighs about one-thirtieth of the total weight of the bird."

[The above is a part of an article which appeared in the *Troy Times* on Austin F. Park's collection of mounted birds, and was sent in by Mr. H. C. Campbell of Lansingburgh, N. Y. Mr. Campbell states in connection to the above that Mr. Park has three specimens in his collection captured in his locality which are very rare; namely, Com. European Crake, Swallow tailed Kite and Kumlien's Gull. The latter is the only recorded specimen taken in this state (N. Y.)

ED.]

TEN PRIZE QUESTIONS.

The following ten questions are original with Mr. H. C. Campbell of Lansingburgh, N. Y., who offers a prize of one fine egg of the European Swan to the person answering the most of the questions.

We will offer a free copy of this and the next number of the SEMI-ANNUAL to the person answering the second largest number. If the two persons sending the most right answers send the same number, the first prize goes to the one whose list was received first and the second prize goes to the other person of course. The answer to each question is the name of some American bird.

1. What some people call taking birds' eggs.
2. What a bully sometimes is.
3. What a prima donna generally is.
4. What women like to do.
5. What one of the clusters of stars is called.
6. What a gaping countryman is often called.
7. The condition in which a mad-man sometimes gets.
8. What the boys go out for.
9. What one of the principals in grinding an axe is called.
10. What a mean boy is sometimes called.

All those wishing to try for the prize will please send in their list of answers to Mr. Campbell as soon as possible before Feb. 1st, '89. and prizes will be forwarded to the winners about the 10th of same month. A list of the right answers and also a list of competitors will be published in the July issue of the SEMI-ANNUAL.

[ED.]

EDITORIAL.

If this number of the SEMI-ANNUAL meets with the success we expect it to, the next number will be greatly improved and enlarged, and will contain much more original matter from prominent Ornithologists and Oologists.

The July issue will contain a frontispiece, an engraving of some eminent Ornithologist and Oologist if possible, together with a sketch of his life. We hope to make arrangements whereby we can illustrate our work with a few full page engravings of birds and their nests. An

unlimited number of small bird cuts will be scattered through the text.

We desire to say that we will at once set to work on the July number, and will be pleased to receive MSS., exchange notices and advertisements at any time after Feb. 1st, '89. We hope you will all contribute something, as every little helps to make the work interesting, the more contributors the better the book.

* * *

We ask you all as a personal favor to read every advertisement in our publication. You will certainly profit by so doing. We have had dealings with all our advertisers, and have found them honest and reliable in all their dealings with us. We can recommend them all to you. When answering "ads" please remember to always mention where you saw the "ad." You will help us greatly by following this little item.

PUBLISHER'S NOTES.

The *Hoosier Naturalist*, Messrs. R. B. Trouslot & Co. of Valparaiso, Ind., publishers, will in the future be issued monthly instead of bi-monthly from Kansas City, Mo. The publishers soon expect to make it an eight page monthly—now a four page.

The *Oologists' Exchange*, a four page monthly for young collectors, is now under the management of Messrs. Dickinson & Durkee of Sharon, Wis.

The *Old Curiosity Shop* comes floating in, this time from Riverside, Cal. With Mr. Haight as editor and proprietor, it will undoubtedly be a success. A journal devoted to Philately, Numismatics, Natural History, Antiquities and Bric-a-brac.

A new magazine for all persons belonging to the Agassiz Association is *The Scientist*, published by Mr. I. C. Greene, for Chapter 48, A. A., Fitchburg, Mass. An eight page monthly of fine appearance and contents.

The *Ornithologist & Oologist* of Boston, Mass., comes regularly and is without doubt the best of its class. The March number contained a cut of the nest of the Parula Warbler, described by Mr. Wm. Brewster. Two continued articles are now running in it, one on the "Birds of Colorado" by Chas. F. Morrison, and the other "Notes on Nebraska Birds" by Messrs. Taylor and Vanvleet.

EXCHANGES AND WANTS.

"Exchange" and "Want" notices will be inserted in this department for 25c. an insertion, regardless of length. We will insert no notices, which are merely indirect methods of soliciting cash purchasers.

Terms, Cash with order.

☞Every person, buying a copy of this issue of the O. & O. SEMI-ANNUAL, will be entitled to a free notice in the next issue, which will be out of press about the 1st of July.

The face part of a human skull, found in the Hudson valley and supposed to be that of an Indian, to exchange for either of the following sets: 286 1-4, 402 1-4, 432 1-4, 436 1-3, 439 1-4, 486 1-3 558 1-3, 567 1-3, 566 1-3, 480 1-18 480a 1-10, 480b 1-12, 482 1-12, 569 1-10, 572 1-10. H. C. Campbell, Lansingburgh, Rens. Co. N. Y.

A set of two Australian Black Swan's eggs for either of the following sets with data: 405 -3, 434 1-2, 448 1-2, 452 1-2, 639 1-2, 736 1-2, 423 1-2. Also a Norwegian Swan's egg for either of the following sets: 338 1-2, 340 1-2 or 341 1-2. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

English eggs to exchange for American. Send exchange and want list. Wm. H. S. Rayment, Lewiston, N. Y.

Look out for my exchange notice here next issue. H. W. Davis, North Granville, N. Y.

Will exchange the following first-class single eggs for $7 worth of first-class eggs in sets with data: 11, 51, 56, 115, 149, 154, 155, 181, 274, 277, 270, 279, 301, 351, 357, 242, 289, 480, 279, 149, 482, 490, 491, 492, 493, 495, 580, 649, 642, 656, 282b, 571, 686, 385, 735, 430, 431, 394, 420, 557, 666, 666a and 763. Water birds' eggs preferred. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

Wanted.—First-class, side-blown, Birds' Eggs, in original sets, with data. In exchange I offer the following: 130 varieties of side-blown birds' eggs, hunting knife with belt, 22 cal., 7 shot, double-action revolver, stylographic pen, receipt for embalming birds and complete vol. of Youths' Companion. Correspondence solicited. D. H. Van Pelt, Lansingburgh, Rens. Co.. N. Y.

I will give a set of Am. Flamingo 1-2, with data, for a set of Royal Tern 1-2; Cabot's Tern 1-2; Sooty Tern 1-1 and Least Tern 1-3 or Black Tern 1-3 and Forster's Tern 1-3. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

To exchange.—The following eggs in sets, with data: 181, 1, 22, 12 also bird skins and mounted birds for birds in the meat. Only fine specimens wanted. E. B. Peck, Brockport, N. Y. Box 845.

To exchange.—First-class eggs Nos. 7, 12, 13, 22, 63, 152, 157, 181, 204, 211, 231, 261, 277, 289, 304, 460, 494, 578, 649, 686, 688, and data blanks sold by dealers at 30c. per 100, for eggs and papers and magazines devoted to Birds and Eggs. Write first. Marshall Cousins, 522 Union St., Eau Claire, Wisconsin.

To exchange.—Nos. 13, 51, 135, 154, 155, 157, 197, 211, 214, 244, 248, 261, 326, 388, 460, 477, 494, 656, 723 and (303, 420, 490, 493 from a Florida collector.) C. O. Trowbridge, Framingham, Mass.

First-class eggs, single and in sets, to exchange for the same. Chas. E. Cram, Davenport, Iowa.

I have the following to exchange for sets of eggs: a large book on Natural History of 800 pages and containing 60 colored plates; 2 brand, new books, Gulliver's Travels and Tom Brown's Schooldays and a pair of Roller Skates. Will N Colton, Biddeford, Me.

Will give a single egg of Trumpeter Swan for Sandhill Crane ½ and Am. Quail 1-12; or Anna's Hummingbird ⅓ and Allen's Hummingbird ½. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

For exchange.—Little Model Printing Press and Outfit, Magic Lantern and 42 Views, 3 unbound vols. "Youth's Companion," U. S. Document Stamps, Natural History and Stamp Papers, for Bird's Eggs, Skins, Taxidermist's Instruments or Supplies. Frank L. Burns, Berwyn, Pa.

I want nice sets of Osprey, Bartram's Sandpiper, Am. Bittern, Hooded Sheldrake, Am. Widgeon, Swallow-tailed Kite, Sooty and Noddy Terns, Hummingbirds and nests. Rare Warblers with nests, Barred Owl, Great Horned Owl, Pigeon Hawk, Bob-white, Wilson's Snipe and some of the commoner species. I can offer in exchange rare Gulls, Geese, Ducks, Plovers, Owls, etc. from Iceland, Lapland and other Arctic regions. W. Raine, 6 Walton St., Toronto, Canada.

Look for my exchange notice here next issue. H. W. Davis, North Granville, N. Y.

Birds' eggs, skins, insects and sea curios, to exchange for first-class eggs in sets, and books and back numbers of papers on Ornithology and Oology. Send your list and receive mine in return. R. C. McGregor, 1019 Geary St., San Francisco, Cal.

Minerals, Ores, Rare Books, Coins, Fossils, Stamps, Shells, Indian Relics and Precious Stones, to exchange for Mounted Birds, and eggs in sets and single. Correspondence solicited. W. L. McDaniel, Tyler, Texas. Box 385.

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